

BIGSKYCARBON

SEQUESTRATION PARTNERSHIP

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What is Carbon Sequestration?

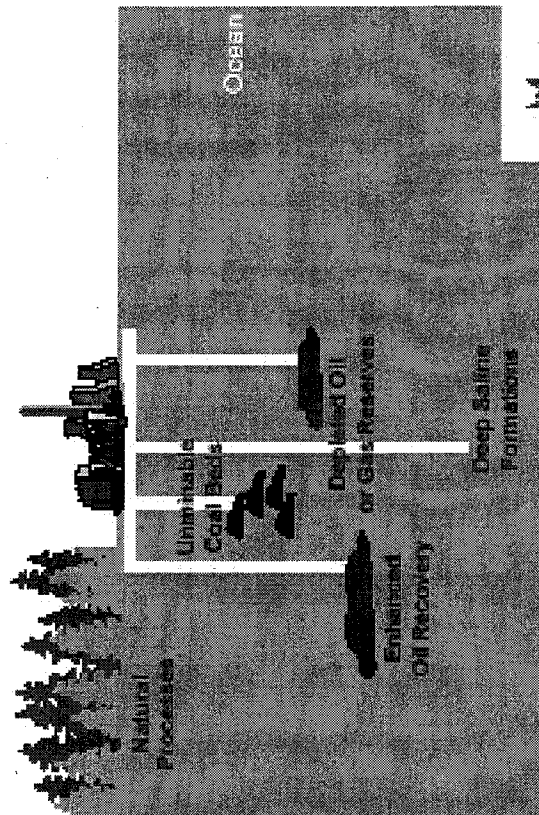
*Capture and storage of CO₂ and other Greenhouse Gases
that would otherwise be emitted to the atmosphere*

Capture can occur:

- at the point of emission
- when absorbed from air

Storage locations include:

- underground reservoirs
- dissolved in deep oceans
- converted to solid material
- trees, grasses, soils, or algae

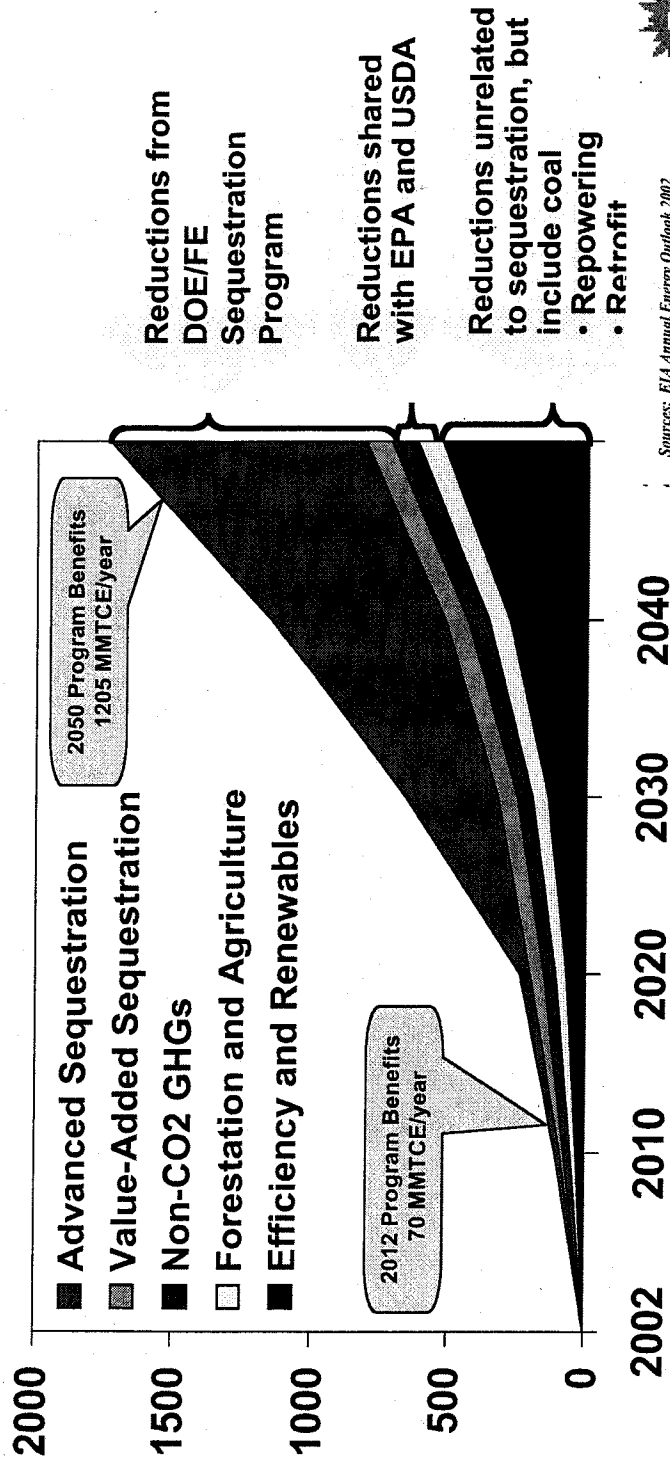


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Sequestration = Stabilization

Could account for >60% of reduction gap in 2050



Sources: EIA Annual Energy Outlook 2002
 EPA special studies
 DOE/FENETL Sequestration Benefits Model
 SIP - ASME Project Review Sept 27, 2005



Figure 1

The Greenhouse Effect

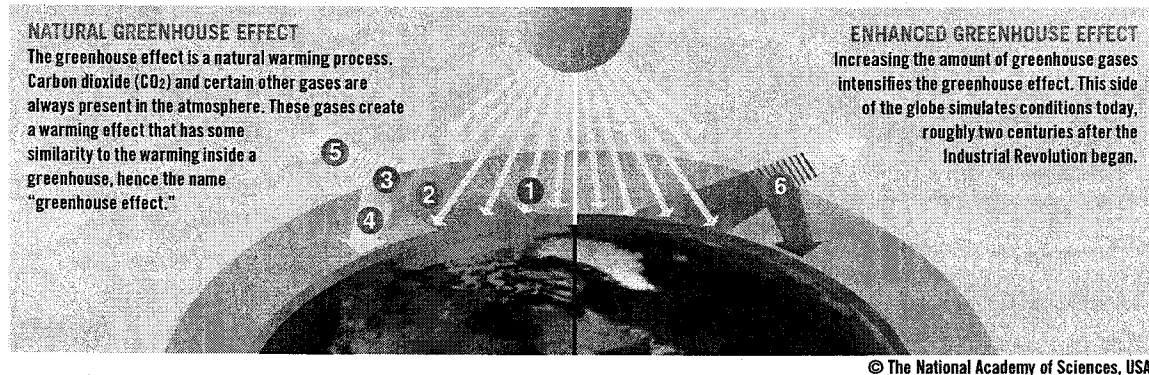


Illustration of the greenhouse effect (courtesy of the Marian Koshland Science Museum of the National Academy of Sciences). Visible sunlight passes through the atmosphere without being absorbed. Some of the sunlight striking the earth ① is absorbed and converted to heat, which warms the surface. The surface ② emits heat to the atmosphere, where some of it ③ is absorbed by greenhouse gases and ④ re-emitted toward the surface; some of the heat is not trapped by greenhouse gases and ⑤ escapes into space. Human activities that emit additional greenhouse gases to the atmosphere ⑥ increase the amount of heat that gets absorbed before escaping to space, thus enhancing the greenhouse effect and amplifying the warming of the earth.

Climate change is a real problem, but it also has real solutions. Some of its effects are already inevitable and will require some degree of adaptation. But humanity has the power—working collectively and individually and at all levels of society—to take serious action to reduce the threat posed by climate change. To avoid the worst effects, scientists say we will need to stabilize greenhouse gas concentrations in the atmosphere; that means reducing emissions of these gases by about 50 to 80 percent. It is a major challenge that will require unprecedented cooperation and participation across the globe. Yet, the tools exist to begin addressing this challenge now. Around the country and throughout the world, many political, business, and community leaders already are working to prevent the consequences of global warming. They are acting because they understand that the science points to an inescapable conclusion: addressing climate change is no longer a choice, but an imperative.

REDUCING EMISSIONS: WHAT IT WILL TAKE

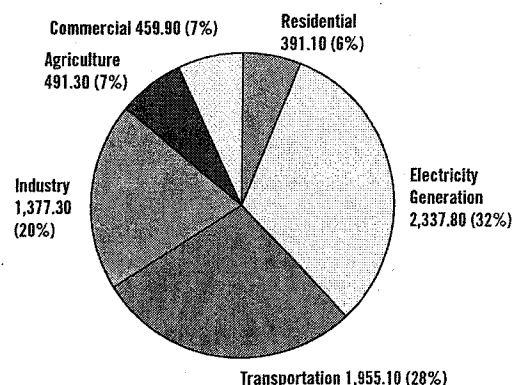
Climate change is not just a daunting challenge; it is also an enormous opportunity for innovation. While there is no "silver bullet" technological solution, many tools already exist for addressing climate change, and new options on the horizon could potentially yield dramatic reductions in worldwide emissions of greenhouse gases.

Although greenhouse gas emissions are primarily associated with the burning of fossil fuels (chiefly, coal, oil and natural gas), they come from many sources. As a result, any effort to reduce the human impact on the climate will need to engage all sectors of society. As Figure 2 shows, the largest contributors to total U.S. emissions are the electricity generation and transportation sectors; significant emissions also come from other commercial and agricultural activity and from buildings in all sectors. In each of these areas, technologies and

Figure 2

2004 U.S. Greenhouse Gas Emissions

by Sector (Million Metric Tons CO₂ Equivalent)



Source: U.S. EPA